

Headquarters U.S. Air Force

**I n t e g r i t y - S e r v i c e - E x c e l l e n
c e**



Air Force Cyber Operations Command

**Lt Gen Bob Elder
Commander 8AF**

**Mission:
5 Jan 2007
Warfighting**

**This Briefing is:
UNCLASSIFIED**



Presentation Overview

- **Cyberspace Command Mission Analysis**
- **Cyberspace Operations**
- **Global Effects C2**



Mission & Intent Brief

Back

- **CSAF Intent:** **Redefine Airpower** by extending our global reach and global power into a new domain ... of electronics and the electromagnetic spectrum.
- **Warfighting Mission:** **Integrate AF's global kinetic and non-kinetic strike capability** ... through the full range of military operations ... with authority to become COMAFFOR for all USAF cyberspace.
- **Administrative Mission:** Develop an “on ramp” to transition the Mighty Eighth into a **MAJCOM Component** responsible for ... the full spectrum of integrated global effects.



DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
WASHINGTON, D.C.

978-20

MECHANICAL AND SURFACE CHARACTERISTICS OF POLY(1,3-PHENYLENE TEREPHTHALAMIDE)

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— 388 — *Opuscula Scriptorum Francorum* 10.10.2010

3. Building stronger ties in the global affairs community. The US will continue to lead and set the pace of international cooperation. This requires a commitment to promote our global reach and global power into a new decade. The defense of democracy and the strengthening of alliances are the two pillars of the US national security strategy. The new iteration of the National Defense Strategy will be a blueprint for the US's global strategy and capabilities under leadership as a source of the continuous contribution through the full range of military operations with sufficient resources to become a DETERIORATOR of global terrorist organizations. The US will remain liaison to STRATEGIC partners and maintain a strong alliance with the United NATIONS for global operations. R&D will provide the backbone for the US's ability to maintain global military posture through operational

5. The strategic planning study can itself also support a conflict-resolution, defensive and defensive positioning through the identification of specific and likely competitive threats with and against your organization. This will encourage consideration and mitigation of unique threat opportunities and functions – Environmental and Chemical, Resource, Network, Warfare, Surveillance and Reconnaissance, and Intelligence – across the spectrum of conflict. These threats pose a crisis-to-war. You will identify how these requirements can assist in transforming the resources, the capability gaps, and their operational tempo. You will also determine your requirements for Air Command, Control and Communications, Intelligence, Surveillance and Reconnaissance, and other warfighting capabilities in the MCDONNELL PIRATE, and also determine their requirements in USTRANCSATCOM.

2. Your primary mission is **teaching/lighting**. Your actions, approaches, responses, can well define your students' opportunities and possibilities. Effectively, as leaders, actors of the Future, you must become role models with regard to the following criteria: Transparency, Communication, Creativity, Critical Thinking, Fairness, Integrity and Professionalism and Information Management. Consider how these traits, your actions and your interactions with stakeholders in your community, reflect your personal opinions and experiences. Consider how these "communicative trademarks" in your community, reflect your personal opinions and experiences.

4. You will require over 500 hours at Air Operations Center (AOC), 100+ in space [i.e. T x N], interrogate with all other AOCs. Through your initiative is use data collected, you will identify intelligence requirements sufficient to detect and mitigate adversary actions via the electromagnetic spectrum. You will collaborate with the Air Warfare Center to develop, test, evaluate, monitor and evaluate operational use for integrated air, space, and cyber operations, as well as coordinate activities of other organizations that support this initiative such as AFRLA.

2. This can be done with a cultural plan or migration. Trade and money for the debts, which are now due, can be used to buy the shares of the firm. In such cases, the shareholders will be asked to contribute to the losses. The shareholders will be asked to contribute to the losses. The shareholders will be asked to contribute to the losses.

4. You will be looking for "hot spots" or weaknesses in your security baseline that you can fix. These are weaknesses in your security or risk management infrastructure that limit the full spectrum of mitigation, giving off less security than you expect. You'll need to identify which areas have the most potential for improvement and fix them. This will take time, so make sure you have a plan in place for how long it will take and what resources you will need.

- Access model through these transformational designs and developing shared-care concepts of ownership to develop fair distribution systems (e.g., spaces, and infrastructure). This may be through the systematic integration of local NGOs (e.g., Chakravartti, De Laat Kuda), and the roles of dedicated professionals in addition to other G4G-NET partners, as appropriate.

8. The final section of the paper is investigating improvements, both by presenting evidence. This includes how the new methods compare, and the cost of the new method in comparison to the current method.

F. W. L. Bailey
1. *Wetlands vegetation*
2. *Soil characteristics*
3. *Plant species*



Endstates & Key Tasks

- Present forces to **STRATCOM** for global operations or ... through **COMAFFOR/JFACC** for theater operations.
- Provide **COCOM** with viable military option ... and execution in air, space, and cyberspace.
- Organize your NAF around an **AOC**, able to operate **24x7x365**, interoperable with all other AOCs
- Advocate your requirements to ACC and Ai Staff functional elements to ensure they are given equal weight to other warfighting capabilities
- Synchronize activities of other organizations ... such as AFCA, AIA, AFC2ISRC, and AFRL



DEPARTMENT OF THE AIR FORCE
Office of the Chief of Staff
Washington, DC

07-Nov-2001



MEMORANDUM FOR AF/CIO (Commander, USAF Strategic Plans & Policy)

FROM: AF/CIO

SUBJECT: Operations Change Control System (OCCS)

1. You should integrate our warfighting requirements into OCCS as an interwarrior tool. As AF/CIO (the Command AF/CIO), this will allow us to continue our process for monitoring our global reach and global power into a single location, the domain of information and the information operations. The new version of OCCS will interface with the integrated AF/CIO (global reach and global power) and the information warfighter to support the mission of the command. It will also provide the full range of warfighting requirements with authority to the Command AF/CIO (global reach and global power) to support the mission of the command. The AF/CIO (global reach and global power) will provide the information warfighter with the ability to execute through synchronized planning, monitoring, and execution in the space and cyberspace.

2. This integrated warfighter tool, OCCS, must be capable to conduct simulated offensive and defensive operations through the use of warfighting requirements from both air and space systems. You will leverage, assimilate and integrate AF/CIO unique cyber capabilities and functions - Command and Control, Mission Planning, Network Warfare, Surveillance and Reconnaissance, and Intelligence - across the spectrum of conflict. These pieces in order to test, train, and measure the requirements you need to accomplish the mission, the capability gaps, and the operational strategy. You will prioritize your requirements to the Command AF/CIO and approach the prioritization of requirements to ensure they are given equal weight to other warfighting capabilities in the **HEAVENLY FIVE**, and also determine these requirements in USETRACOM.

3. Your primary mission is warfighting. Warfighting operations commence with initial strategic, operational, and tactical offense and defensive actions in the course of the Post operational activities will emphasize warfighting assets, Personnel, Communications, Counterintelligence, Cryptologic and Control, Air Defense and Reconnaissance, and Information Operations. You will prioritize options and requirements available since "warfighting packages" is difficult to plan.

4. You will require your NAF stand at Air Operations Center (AOC), able to operate 24x7x365, interoperable with other AOCs. Through your exercises in use data collection, we will identify integration requirements to defend and increase performance across the warfighting spectrum. You will collaborate with the Air Warfighting Center in defining, test, train, review, and evaluate requirements for command, space, and cyber operations, as well as requirements for warfighting requirements that support Cyber activities such as AFCCA, AFCSA, AFCSB, AFCSB, AFCSB, AFCSB.

5. Your warfighting tool, OCCS, will also include a robust offensive, defensive, and defensive warfighting system. The system will be designed to support the mission of the command, the mission of the warfighter, and the mission of the warfighter's warfighter. The system will be designed to support the mission of the command, the mission of the warfighter, and the mission of the warfighter's warfighter. The system will be designed to support the mission of the command, the mission of the warfighter, and the mission of the warfighter's warfighter.

6. You will develop an "on-ramp" to transition the AF/CIO (global reach and global power) to OCCS. This will include the transitioning of warfighting requirements from AF/CIO to OCCS. The AF/CIO will be responsible for the development of the "on-ramp" and the AF/CIO will be responsible for the development of the "on-ramp". The AF/CIO will be responsible for the development of the "on-ramp" and the AF/CIO will be responsible for the development of the "on-ramp". The AF/CIO will be responsible for the development of the "on-ramp" and the AF/CIO will be responsible for the development of the "on-ramp".

7. You will develop through other institutional changes and transitions and transition of responsibilities to support the AF/CIO functional areas etc., space, and cyberspace. This will be through the selection and implementation of tools for C2, Cyberspace, DC, LCM, Space, and the rest of functional requirements for all other AF/CIO functional areas, as appropriate.

8. The final priority will be having an integrated information, delivery processing, offices. This will facilitate a more warfighting focused, and OCCS oriented culture in order to be successful in this area. Your organization will be the core and the center of warfighting requirements for warfighting, monitoring, and reporting.

Dr. Michael J. Bostick
Director, AFCSB
AF/CIO (global reach and global power)
AF/CIO (space and cyberspace)



Missions/Phases

Missions

- Integrate AF's global kinetic and non-kinetic strike capability
- OT&E to provide full spectrum of integrated global effects

Phases

1. Change culture from cyber as force enabler to warfighting force
2. Organize and present forces for full spectrum, integrated operations—peacetime through combat, global and theater
3. Advocate for Cyber manpower, resources, and a requirement CONOPS to provide Cyber forces and capabilities to COCOMS
4. Transition to the Cyber force provider (MAJCOM)

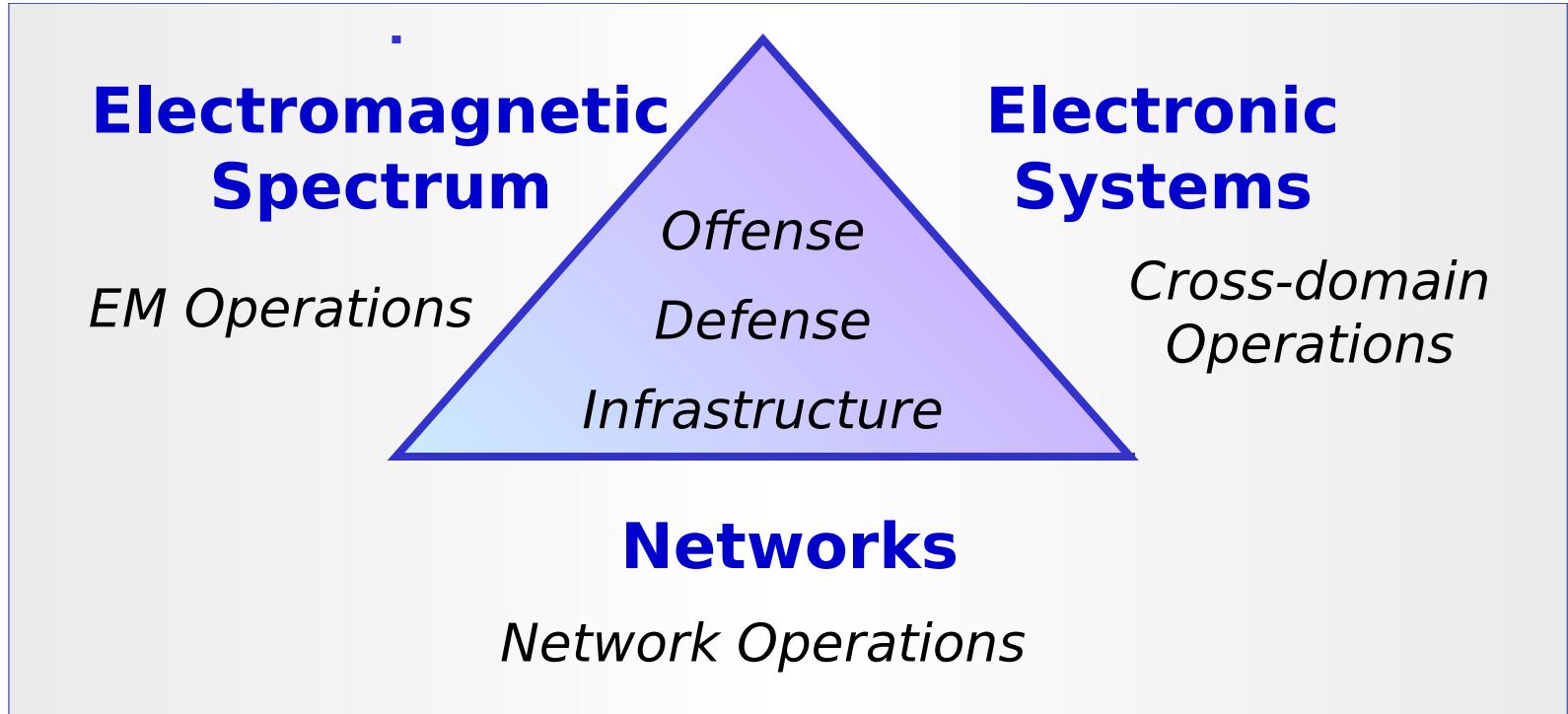


Prioritized Essential Tasks

- Build CONOPS/CONEMP
- Baseline Global Effects Force - Define Gaps/METLs
- Identify Manpower Requirements
- Identify Resource and Support Requirements
- Develop Cyber COP
- Baseline Capabilities/ Threats (EOB/FOB)
- ID Intelligence Requirements
- Integrate with Theater Commanders and Functional POCs
- Resolve CD & “fratricide” issues (ROE & Authorities)
- Stand up a Cyber PE & advocate in AF Corporate Structure
- Develop initial POM capability (with Air Staff support)



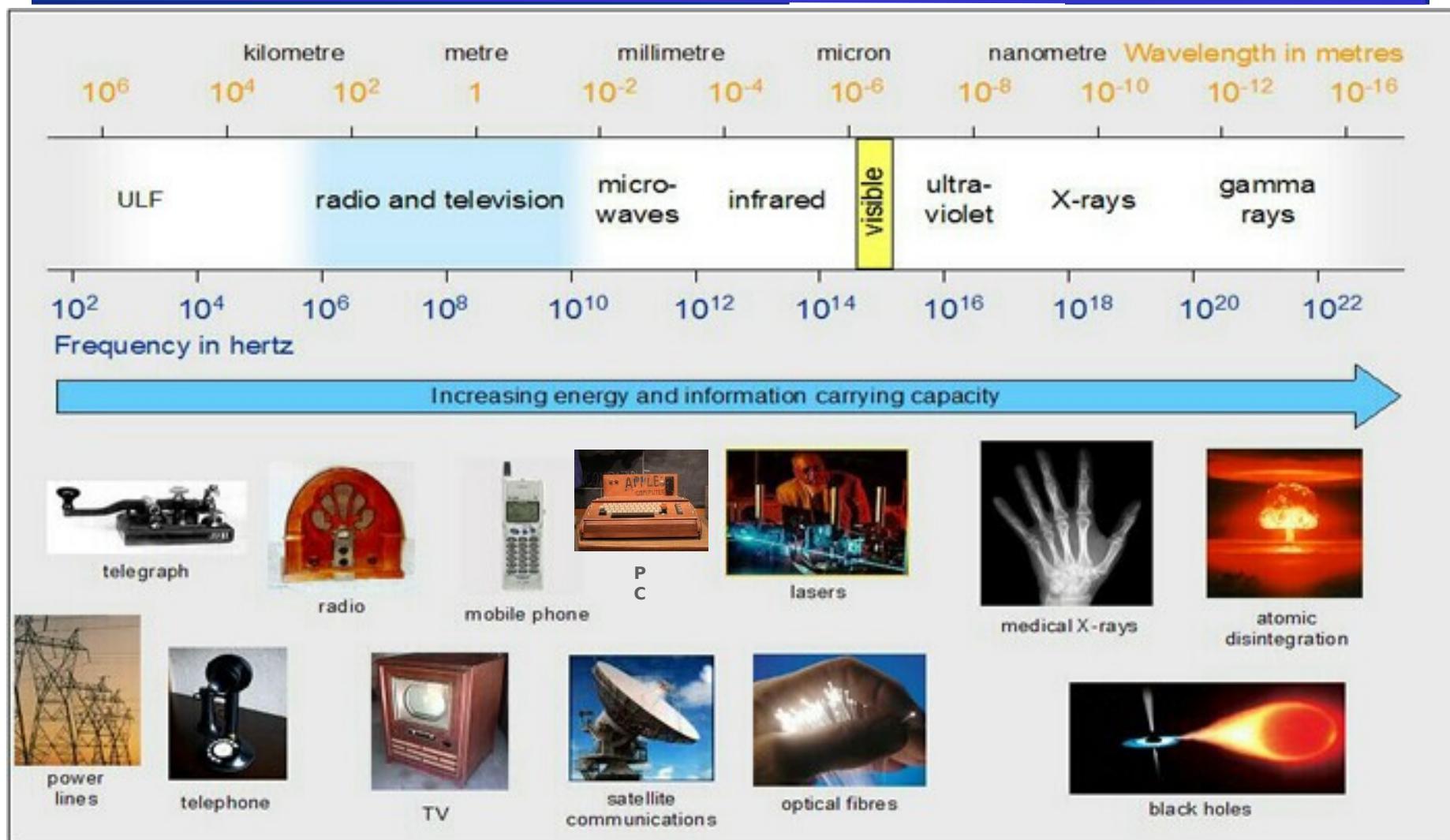
Background: Cyberspace



DoD Definition: Cyberspace is a domain characterized by the use of electronics and the electromagnetic spectrum to store, modify, and exchange data via networked systems and associated physical infrastructures



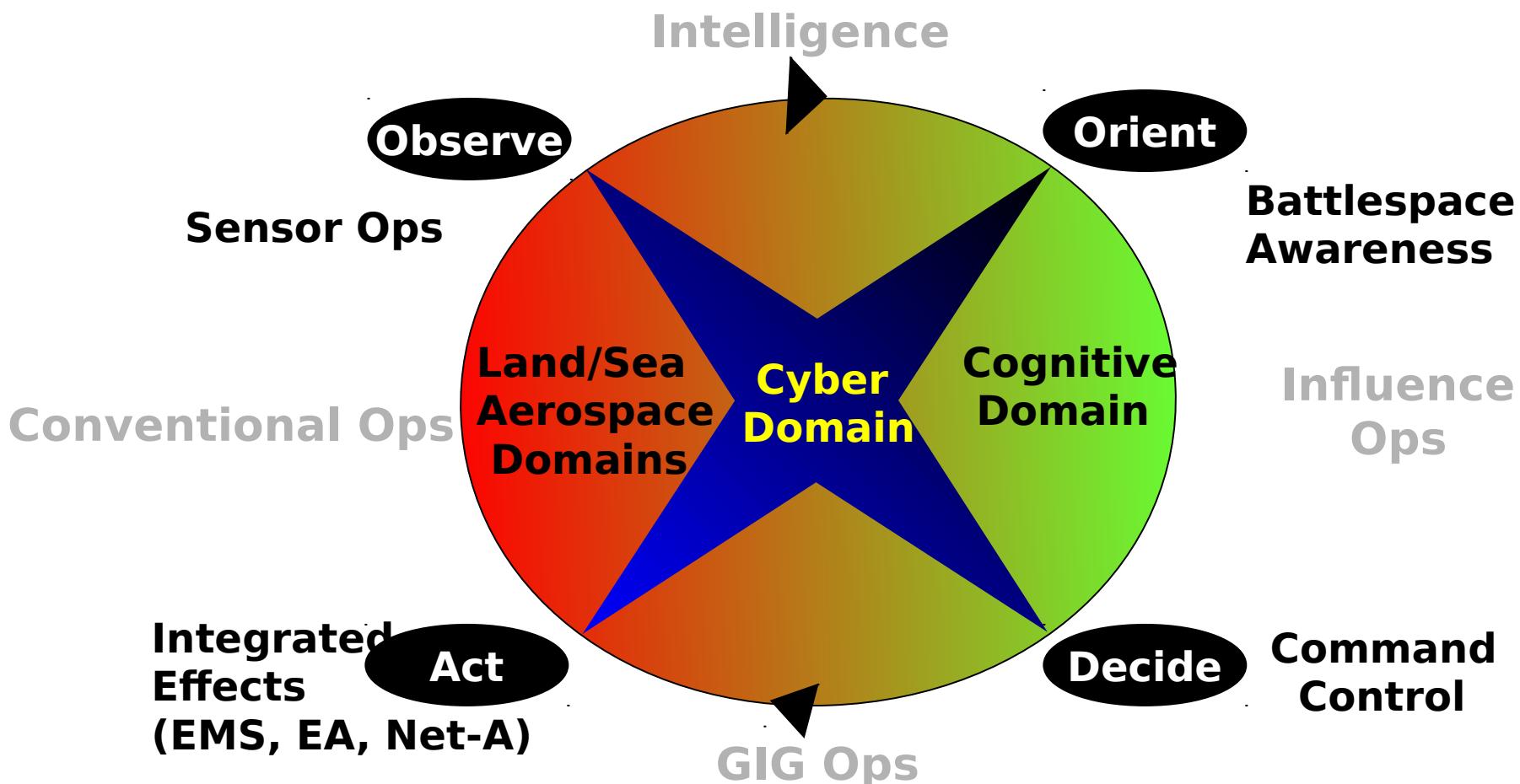
Exploiting the EMS



DC to Daylight to Gamma Rays and Beyond



The Battle in Cyberspace



Offense, Defense, Infrastructure Elements



“Fly & Fight” in Cyberspace

Cyber
Ops

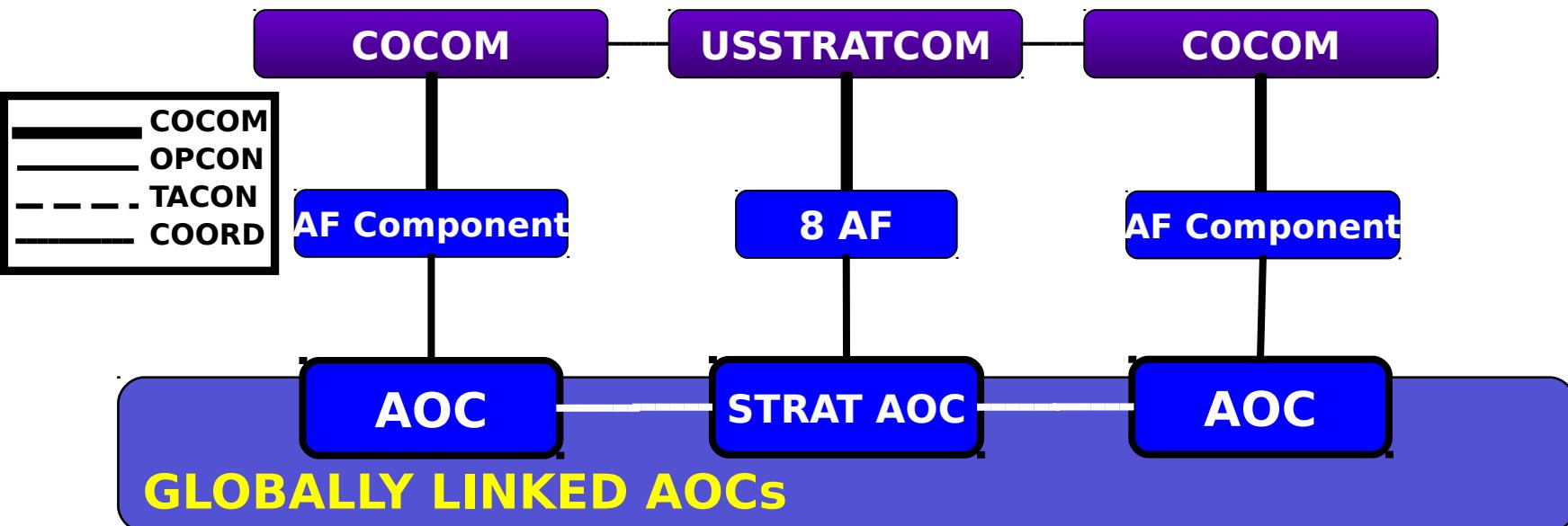


- **Operational Freedom of Action**
 - Networked Systems Survivability
 - Counter-cyber (Defense) Ops
- **Global Effects Integration**
 - Surveillance/Reconnaissance
 - Battlespace Awareness
 - Command & Control
 - Combat Systems Effectiveness
- **Offensive Cyber Ops**
 - IADS, C2, Control Systems
 - Adversary Combat Systems
 - Adversary Information Systems
- **Enabling Ops:** Intel, GIG Ops, IFO

For USAF, Cyberspace is a *Warfighting* Domain



Global Effects C2 Concept



Global Air Force Capabilities



“Leverage, consolidate and integrate AF-unique cyber capabilities and functions across the spectrum of conflict from peace to crisis to war”



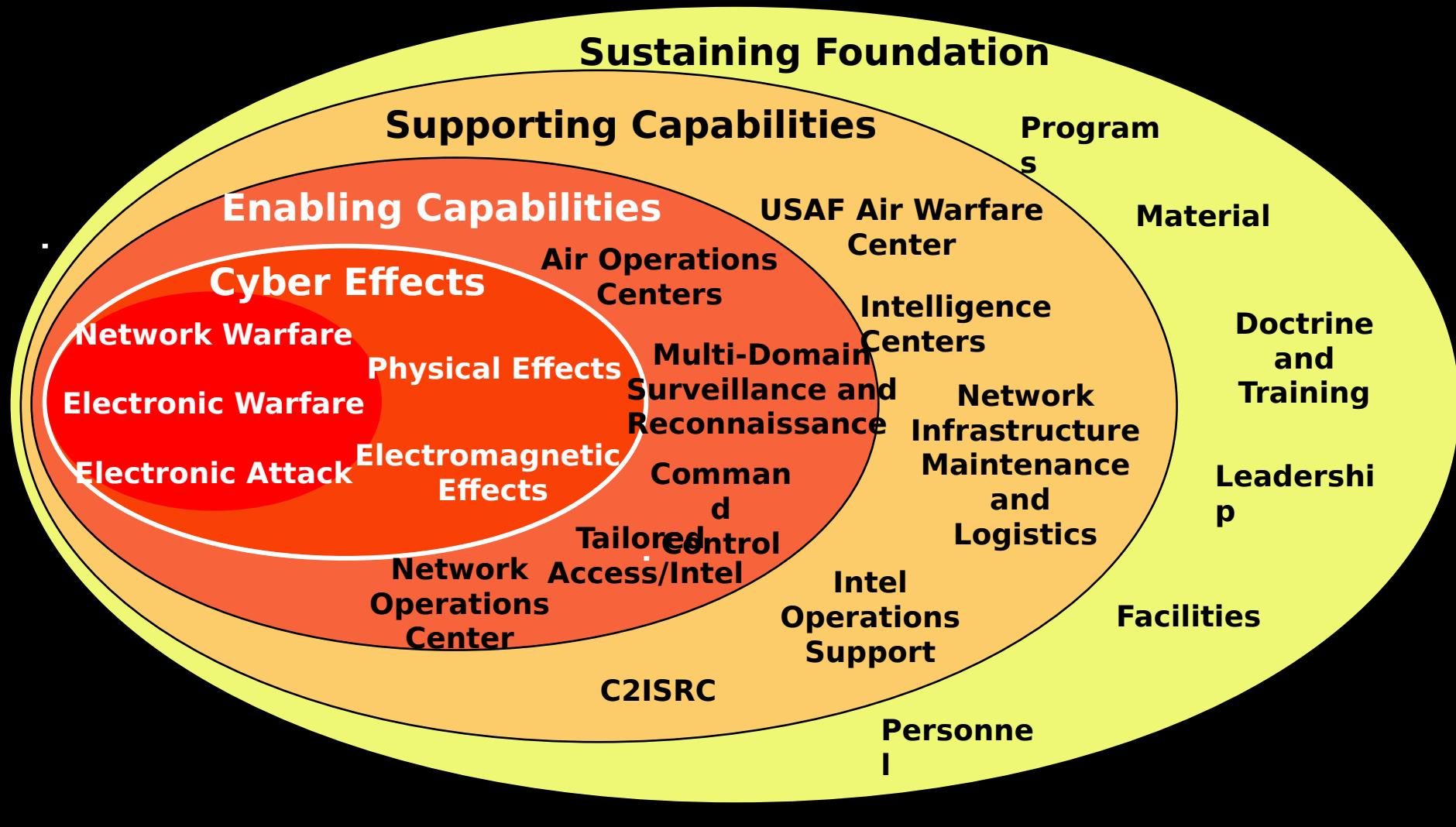
8 AF and Cyber Ops

- **Global Strike:** B-2, B-52
- **Network Operations:** AFNOC, I-NOSC, Network Warfare Wing
- **Surveillance/Reconnaissance:** RC-135, U-2, Global Hawk
- **C2/Battle Management:** AWACS, JSTARS, CAOC, ASOG, E-4
- **Electronic Warfare:** EC-130 Compass Call
- **Intelligence:** Distributed Common Ground Station (DCGS)





Effects-based Cyber Enterprise





Summary

- AF conducts Cyber Ops to **ENSURE OUR FREEDOM OF ACTION** and **DENY FREEDOM OF ACTION TO OUR ADVERSARIES**
- Air Force views Cyberspace as a warfighting domain on par with the air, space, ground, and maritime domains
- DoD views Cyberspace as much more than the Internet ... a domain characterized by the use of electronics and the electromagnetic spectrum to store, modify, and exchange data via networked systems and associated physical infrastructures
- Sensors, C2 elements, and shooters are networked together via Cyberspace to produce integrated cross-domain effects
- Cyberspace ops require secure, survivable, and resilient networks, infrastructure, and electromagnetic spectrum